

**WE CLAIM:**

1. A head stack assembly for use with a disk drive, the head stack assembly comprising:

a flex cable assembly;

an actuator including an actuator arm;

a load beam coupled to the actuator arm, the load beam being formed of an electrically conductive material;

a trace suspension assembly backing layer formed of an electrically conductive material, the trace suspension assembly backing layer being coupled to the load beam and including a gimbal;

a dielectric layer disposed upon the trace suspension assembly backing layer;

a slider supported by the gimbal; and

a ground trace disposed upon the dielectric layer with the dielectric layer between the ground trace and the trace suspension assembly backing layer, the ground trace extending along the actuator arm and electrically connected to the slider and the flex cable assembly for grounding the slider to the flex cable assembly.

2. The head stack assembly of Claim 1 wherein the actuator further includes an actuator body, the actuator arm includes a base portion attached to the actuator body, the flex cable assembly is attached to the actuator body and extends to adjacent the base portion.

3. The head stack assembly of Claim 2 wherein the ground trace extends to adjacent the base portion, the ground trace is electrically connected to the flex cable assembly adjacent to the base portion.

1 4. The head stack assembly of Claim 1 further includes read and write traces disposed upon  
2 the dielectric layer with the dielectric layer between the read and write traces and the trace  
3 suspension assembly backing layer, the read and write traces are disposed in electrical  
4 communication with the slider and the flex cable assembly.

1 5. The head stack assembly of Claim 1 wherein the flex cable assembly includes a pre-amp  
2 ground, the ground trace is disposed in electrical communication with the pre-amp ground.

1 6. A disk drive comprising:

2 a disk drive base; and

3 a head stack assembly rotatably coupled to the disk drive base, the head stack

4 assembly comprising:

5 a flex cable assembly;

6 an actuator including an actuator arm;

7 a load beam coupled to the actuator arm, the load beam being formed of an  
8 electrically conductive material;

9 a trace suspension assembly backing layer formed of an electrically  
10 conductive material, the trace suspension assembly backing layer being coupled to  
11 the load beam and including a gimbal;

12 a dielectric layer disposed upon the trace suspension assembly backing layer;

13 a slider supported by the gimbal; and

14 a ground trace disposed upon the dielectric layer with the dielectric layer  
15 between the ground trace and the trace suspension assembly backing layer, the  
16 ground trace extending along the actuator arm and electrically connected to the  
17 slider and the flex cable assembly for grounding the slider to the flex cable  
18 assembly.

1     7.     A head gimbal assembly for a disk drive, the head gimbal assembly comprising:  
2             a trace suspension assembly backing layer formed of an electrically conductive  
3             material, the trace suspension assembly backing layer including:  
4                 a load beam section;  
5                 a gimbal coupled to the load beam section; and  
6                 a ground trace disposed adjacent the gimbal and extending along the load  
7             beam section;  
8             a dielectric layer disposed upon the trace suspension assembly backing layer  
9             adjacent to the gimbal; and  
10            a slider supported by the gimbal, the slider being electrically connected to the  
11            ground trace for electrically grounding the slider.

1     8.     The head gimbal assembly of Claim 7 further includes a load beam, the trace suspension  
2     assembly backing layer is supported by the load beam.

1     9.     The head gimbal assembly of Claim 7 wherein the trace suspension assembly backing layer  
2     is attached to the load beam with a non-conductive epoxy disposed between the trace suspension  
3     assembly backing layer and the load beam.

1     10.    The head gimbal assembly of Claim 7 further includes a via disposed through the dielectric  
2     layer, the slider is electrically connected to the trace suspension assembly backing layer through  
3     the via.

1     11.    The head gimbal assembly of Claim 7 further includes read and write traces disposed  
2     upon the dielectric layer with the dielectric layer between the read and write traces and the trace

- 3 suspension assembly backing layer, the read and write traces are disposed in electrical
- 4 communication with the slider.

12. A disk drive comprising:

a disk drive base; and

a rotary actuator rotatably coupled to the disk drive base, the rotary actuator includes

a head gimbal assembly, the head gimbal assembly comprising:

a trace suspension assembly backing layer formed of an electrically  
conductive material, the trace suspension assembly backing layer including:

a load beam section;

a gimbal coupled to the load beam section; and

a ground trace disposed adjacent the gimbal and extending along the  
load beam section;

a dielectric layer disposed upon the trace suspension assembly backing layer  
adjacent to the gimbal; and

a slider supported by the gimbal, the slider being electrically connected to  
the ground trace for electrically grounding the slider.

1 13. A head gimbal assembly for use with an actuator arm of a disk drive, the head gimbal  
2 assembly comprising:

3 a load beam formed of an electrically conductive material including a gimbal end  
4 and a swage end;

5 a slider;

6 a trace suspension assembly backing layer formed of an electrically conductive  
7 material, the trace suspension assembly backing layer being coupled to the load beam and  
8 including a gimbal disposed adjacent to the gimbal end, the gimbal being attached to the  
9 slider for supporting the slider;

10 a dielectric layer disposed upon the trace suspension assembly backing layer; and

11 a ground trace disposed upon the dielectric layer with the dielectric layer between  
12 the ground trace and the trace suspension assembly backing layer, the ground trace  
13 extending between the gimbal end and the swage end, the ground trace being electrically  
14 connected to the slider for grounding the slider to the actuator arm.

1 14. The head gimbal assembly of Claim 13 includes a via disposed through the dielectric layer,  
2 the ground trace is electrically connected to the trace suspension assembly backing layer through  
3 the via.

1 15. The head gimbal assembly of Claim 13 further includes a swage plate having a swage  
2 opening, the load beam is attached to the swage plate, the ground trace is electrically connected  
3 to the trace suspension assembly backing layer at the swage plate adjacent the swage opening.

1 16. The head gimbal assembly of Claim 15 further includes a hinge plate, the load beam is  
2 attached to the swage plate through the hinge plate.

1    17.    The head gimbal assembly of Claim 13 further includes read and write traces disposed  
2    upon the dielectric layer with the dielectric layer between the read and write traces and the trace  
3    suspension assembly backing layer, the read and write traces are disposed in electrical  
4    communication with the slider.



1 18. A disk drive comprising:

2 a disk drive base; and

3 a head stack assembly rotatably coupled to the disk drive base, the head stack

4 assembly including

5 an actuator arm; and

6 a head gimbal assembly coupled to the actuator arm, the head gimbal

7 assembly comprising:

8 a load beam formed of an electrically conductive material including

9 a gimbal end and a swage end;

10 a slider;

11 a trace suspension assembly backing layer formed of an electrically

12 conductive material, the trace suspension assembly backing layer being

13 coupled to the load beam and including a gimbal disposed adjacent to the

14 gimbal end, the gimbal being attached to the slider for supporting the slider;

15 a dielectric layer disposed upon the trace suspension assembly

16 backing layer; and

17 a ground trace disposed upon the dielectric layer with the dielectric

18 layer between the ground trace and the trace suspension assembly backing

19 layer, the ground trace extending between the gimbal end and the swage end,

20 the ground trace being electrically connected to the slider for grounding the

21 slider to the actuator arm.